

Appln No. 10/020,491  
Amdt date June 7, 2006  
Reply to Office action of January 9, 2006

## **REMARKS/ARGUMENTS**

### **Summary**

Claims 1-48 were pending in the application. In the Office action mailed January 9, 2006, claims 30, 37 and 38 are rejected under 35 U.S.C. §112, second paragraph; claims 1, 7-10, 24, 27, 31, and 45-47 were rejected under 35 U.S.C. §102(b); and claims 2-6, 11-23, 25, 26, 28-30, 33-38, 39, 40-44 and 48 were rejected under 35 U.S.C. §103(a). Applicant thanks Examiner for attention to the application. Claims 1, 3-6, 17-21, 23, 25-30, 32, 35, 37, 38, 40-47 are now amended. Claim 48 is cancelled.

### **Claims 30, 37 and 38 Rejected Under 35 U.S.C. §112**

Claims 30, 37 and 38 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Office action states in relevant portion:

In particular, claim 30 lacks proper antecedent basis for "the predetermined location". It appears the claims should probably depend on claim 27. In particular, claims 37 and 38 lack proper antecedent basis for "the portion indicators". It appears the claims should depend on claim 36. (Office action, page 2).

Claims 30, 37 and 38 are now amended to correct claim dependency.

### **Claims 1, 7-10, 24, 27, 31, 32, and 45-47 Rejected Under 35 U.S.C. §102(b)**

Claims 1, 7-10, 24, 27, 31, 32, and 45-47 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,367,520 to Cordell. Claim 1 is now amended to specify "wherein the system is configured to place each data of the plurality of data in a specific queue of the plurality of queues based on a priority associated with each data; and wherein the load balancer is configured to detect availability of additional crossbar devices." It is noted that prior

**Appln No. 10/020,491**  
**Amdt date June 7, 2006**  
**Reply to Office action of January 9, 2006**

claim 27 specified "wherein the load balancer is configured to detect additional crossbar devices added to the plurality of crossbar devices," and prior claim 32 specified "storing the plurality of data in a plurality of queues, each data of the plurality of data being placed in a specific queue of the plurality of queues based on a priority associated with each data." Prior claims 27 and 32, like prior claim 1, were rejected as being anticipated by Cordell. The Office action, with respect to claim 27, states that "additional crossbars are inherently taught by the reference since adding additional crossbars are still supported since the load balancing is performed dynamically. See also e.g., column 9, lines 57-67 of Cordell." (Office action, page 3). Cordell, column 9, line 52 to column 10, line 23, recites:

There are many possibilities for the algorithm that operates in the path controller 23. In general, its action probably should be responsive to the occupancies of the queues whose paths are being controlled. One thing that is attractive about the path-adaptive switch is that all of the 512 Path Controllers 23 in the switch can be identical. Consequently, explicit differences need not be built into or programmed into the path controllers 23 (e.g., different pseudo-random sequences) to assure uncorrelated path changing actions among the Path Controllers 23. This is so because of the statistical nature of the queue occupancies being used to institute action; it is unlikely that the occupancies of two queues in contention will cross the same threshold at the same time. Furthermore, it is easy to design the algorithm so that the nature of a path change, when one is made, depends on the history of previous changes throughout that entire Input Buffer Group 10, and it is unlikely that these histories will be the same.

A simple algorithm might work as follows: the 16 buffers whose occupancy most exceeds a threshold, and whose occupancy has increased since the last cell period, will be switched on a cell period border. That threshold might be made a bit higher for queues that have been associated with a particular path for an extended period. A switch of a buffer path assignment will be

**Appln No. 10/020,491**  
**Amdt date June 7, 2006**  
**Reply to Office action of January 9, 2006**

accomplished with a pairwise exchange between that buffer's assignment and another buffer's assignment. The buffer with the greatest excess occupancy chooses its new path first, followed in order of excess occupancy by the others. A buffer that is marked for a change but has already been changed by an earlier pairwise exchange does not choose a new path when its turn comes. In choosing a new path, a buffer might target a path number that corresponds to its current path number plus an increment, the sum being taken modulo-32. The increment number could be chosen so that in 32 consecutive changes the buffer will have tried all of the 32 different paths. Different increment numbers can be chosen for the first, second, etc. buffer path selections.

Nowhere in the above section does Cordell teach or disclose "the load balancer is configured to detect availability of additional crossbar devices." Furthermore, Applicant respectfully submits that the Examiner must provide rationale or evidence tending to show inherency, (MPEP §2112, IV.). The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic, (MPEP §2112, IV.). In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art, (MPEP §2112, IV.). In this case, it appears that "the load balancer is configured to detect availability of additional crossbar devices" not only does not necessarily flow from the teaching of Cordell, but that there is no indication that "the load balancer is configured to detect availability of additional crossbar devices" may be in Cordell.

In fact, Cordell teaches that "the failure of a switch plane does not cause a corresponding loss in input buffer resources. It would only mean that 1/32 of the time an input buffer would be connected to a 'dead' switch plane, where it would be blocked (by 'failure to win contention') until the pseudo-random path assignment changed," (Cordell, column 9, lines 24-29). Cordell further teaches that "if one of the 32 switch planes fails, the path assignment switches in the Input Buffer Groups 10 evenly distribute the loss of throughput across the input queues that are

**Appln No. 10/020,491**  
**Amdt date June 7, 2006**  
**Reply to Office action of January 9, 2006**

served (as long as that switch plane's CRD returns no winner indications). Switch throughput is then reduced uniformly by 3.1 percent." Cordell does not teach, suggest or disclose "the load balancer is configured to detect availability of additional crossbar devices," as recited in amended claim 1.

Accordingly, it is believed that claim 1, as amended, is allowable in view of Cordell for at least this reason. As claims 7-10, 24, 27, and 31 depend from claim 1, it is also believed that claims 7-10, 24, 27, and 31 are allowable for at least this reason.

Claim 1, as amended with text similar to that of prior claim 32, further specifies "wherein the system is configured to place each data of the plurality of data in a specific queue of the plurality of queues based on a priority associated with each data." The Office action, with regard to claim 32, states that "with respect to based on priority, the cells are placed in the input queues in part based on input concentration such that the queues have an associated priority given a reasonable but broad interpretation in view of applicant's specification, see e.g., column 15, lines 15-30 of Cordell." Cordell, column 15, lines 15-30, recites:

If the process of concentration is allowed to take into account the status of the subsequent switching fabric, such as input queue occupancy, that will be referred to herein as Interactive Input Concentration. An example of this would be as follows: when a subscriber port needs a switch port allocated to it, the least-busy queue in that concentration group of queues may be allocated. In some cases, this will automatically reduce the offered load to queues that are filling up due to HOL blocking. Furthermore, such an approach would provide for graceful failure degradation in the presence of input buffer failures because those queues would become unavailable for allocation to subscriber lines.

Nowhere in the above section does Cordell teach or disclose "wherein the system is configured to place each data of the plurality of data in a specific queue of the plurality of queues based on a priority associated with each data," (underlining added). Accordingly, it is believed that claim 1, as amended, is allowable in view of Cordell for at least this reason. As claims 7-10,

**Appln No. 10/020,491**  
**Amdt date June 7, 2006**  
**Reply to Office action of January 9, 2006**

24, 27, and 31 depend from claim 1, it is also believed that claims 7-10, 24, 27, and 31 are allowable for at least this reason.

Claim 32, as amended, further specifies "determining the availability of additional crossbar devices." From the above discussion of Cordell, it does not appear that Cordell teaches, discloses, or suggests "determining the availability of additional crossbar devices." Accordingly, it is believed that claim 32, as amended, is allowable in view of Cordell. As claims 45-47 depend from claim 32, it is also believed that claims 45-47 are allowable.

Furthermore, claim 32, as amended, specifies "wherein each data of the plurality of data is placed in a specific queue of the plurality of queues based on a priority associated with each data." From the above discussion of Cordell, it does not appear that Cordell teaches, discloses, or suggests "wherein each data of the plurality of data is placed in a specific queue of the plurality of queues based on a priority associated with each data." Accordingly, for the aforementioned reasons regarding the corresponding limitation of claim 1, it is believed that claim 32, as amended, is allowable in view of Cordell. As claims 45-47 depend from claim 32, it is also believed that claims 45-47 are allowable.

**Claims 2-6, 11-23, 25, 26, 28-30, 33-38, 39, 40-44, and 48 Rejected Under 35 U.S.C. §103(a)**

**Rejected Claims 2-6, 33-35, and 48**

Claims 2-6, 33-35, and 48 were rejected under 35 U.S.C. §103(a) as being unpatentable over Cordell in view of "Expandable ATOM Switch Architecture (XATOM) for ATM LANS" to Fan et al. ("Fan"). Claims 2-6 depend from claim 1, which is believed to be allowable for the aforementioned reasons. Accordingly, claims 2-6 are believed to be allowable. Claims 33-35 depend from claim 32, which is believed to be allowable for the aforementioned reasons. Accordingly, claims 33-35 are believed to be allowable. Claim 48 has been cancelled.

**Rejected Claims 11-14 and 36-38**

Claims 11-14 and 36-38 were rejected under 35 U.S.C. §103(a) as being unpatentable over to Cordell in view of U.S. Patent Application 2002/0141427 A1 to McAlpine. Claims 11-14 depend from claim 1, which is believed allowable for the aforementioned reasons. Accordingly,

**Appln No. 10/020,491**  
**Amdt date June 7, 2006**  
**Reply to Office action of January 9, 2006**

claims 11-14 are believed to be allowable. Claims 36-38 depend from claim 32, which is believed allowable for the aforementioned reasons. Accordingly, claims 36-38 are believed to be allowable.

Rejected Claims 15-23, 39, and 40-44

Claims 15-23, 39, and 40-44 were rejected under 35 U.S.C. §103(a) as being unpatentable over Cordell in view of Fan and in further view of McAlpine. Claims 15-23 depend from claim 1, which is believed allowable for the aforementioned reasons. Accordingly, claims 15-23 are believed to be allowable. Claims 39 and 40-44 depend from claim 32, which is believed allowable for the aforementioned reasons. Accordingly, claims 39 and 40-44 are believed to be allowable.

Rejected Claims 25, 26 and 28-30

Claims 25, 26, and 28-30 were rejected under 35 U.S.C. §103(a) as being unpatentable over Cordell in view of U.S. Patent No. 6,871,347 B2 to Hay. Claims 25, 26, and 28-30 depend from claim 1, which is believed allowable for the aforementioned reasons. Accordingly, claims 25, 26, and 28-30 are believed to be allowable.

Conclusion

Accordingly, the application is now in condition for allowance, and allowance of same is respectfully requested.

Respectfully submitted,  
CHRISTIE, PARKER & HALE, LLP

By



Daniel M. Cavanagh, Reg. No. 41,661  
Telephone: 626/795-9900

DMC/GXF